Ohio Agricultural Experiment Station

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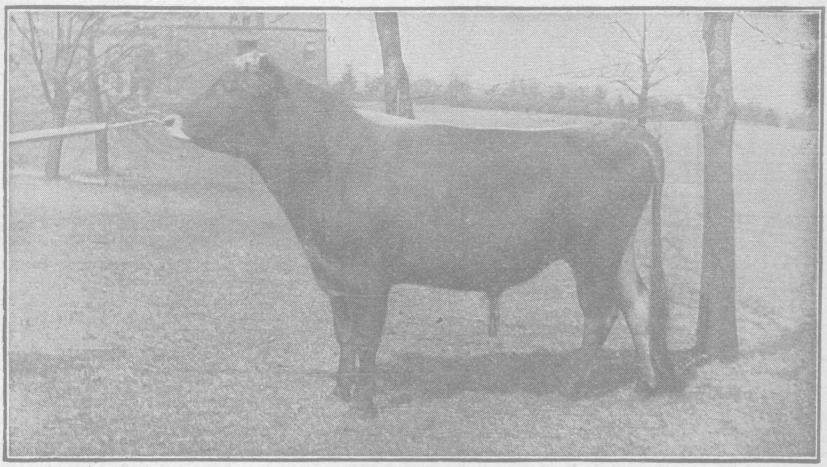
BUILDING UP THE DAIRY HERDS OF OHIO



The difficult problem in breeding is the selection of a choice sire

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BUILDING UP THE DAIRY HERDS OF OHIO

INTRODUCTION

The 1910 census shows that there were in Ohio 905,128 dairy cows and heifers above 1 year of age. From a report of cooperative work done by this Station, it appears that there is great need of, and room for, great improvement of these dairy cattle. In Circular 99, the statement is made that in 146 herds, containing 538 cows, nearly 45 out of every 100 were discarded by the end of the first year during which they were under test. They were disposed of because they did not pay for the feed consumed, and doubtless many others were found unprofitable. These herds were probably above the average in the state, as only the more progressive men were willing to take up the work of keeping records. In the Annual Report of the Ohio State Dairymen's Association, the statement is made that the average cow in Ohio produces about 160 pounds of butterfat annually. If this statement is correct, the average cow lacks much of paying for her keep. Does this mean that Ohio dairymen are keeping some 400,000 cows just for the pleasure of supplying the people with dairy products? It does indicate that, when all obligations are met (interest on investment, depreciation, taxes, labor, etc.), the average cow is a losing proposition for the farmer. This loss would amount to millions of dollars annually in the state. Some of this loss is due to poor feeding, but a large part is due to poor breeding. Unless cheaper feeds, better cows or better prices can be obtained, many farmers would better quit the dairy business in Ohio. One or all of these can be obtained gradually if the proper effort is put forth.

It is comparatively safe to say that not over one-third of the cows in the state would produce 300 or more pounds of butterfat in one year, if reasonably well fed. No dairyman should be satisfied until the poorest cow in his herd is capable of producing the above amount. If all cows in the state were developed to this point, the value of the increased production of butterfat would amount to approximately $17,000,000 annually—an amount equal to the value of all butter now made in the state. On the following pages an attempt is made to give some suggestions which will assist dairymen in overcoming these losses by building up and maintaining more efficient herds.

IMPROVEMENT BY GRADING

The ideal condition would be to have only high producing, pure-bred cattle within the state which is impossible because of the small number of such cattle available. Not over 3 percent of the cattle are pure-bred and of this number many are inferior or diseased, which renders them unfit for foundation animals on which to build future herds. If sufficient pure-bred cows were available, at present prices the average dairyman could not dispose of his herd and replace it with pure-bred cows. In general, he must use the best producers in his herd for foundation stock.

CULLING THE HERD

The first step in building up a herd of good producers is to get rid of all cows which do not pay for their keep, when feeds are figured at prices obtainable at the farm. Cows which will not do this are expensive cows and it would be better to give them away than to keep them. Poor producers are of no value as breeders, because heifer calves raised from them will usually be poor producers also; though they are as expensive to raise as the progeny of good cows. The method of determining which are unprofitable cows is described in Circular 122 of this Station. Once they are discovered, their proper place is the slaughter house.

THE SIRE

While these expensive "boarders" are being discovered, steps should be taken to secure a good male to head the herd. If heifer calves worth while are to be raised to replenish the herd, a poor bull is more expensive in the long run than a few poor cows and should not be taken as a gift. No one can afford to use a "scrub" and no progressive dairyman will use one. The kind of a bull used advertises the energy and intelligence of his owner. It is wise to avoid buying even heifers from the man who uses a "scrub" bull, or a bull of beef breeding.

The problem of selecting a good sire is not always an easy one. At the present time the majority of breeders do not keep accurate records of the production of their cows, and hence are not able to give accurate information to prospective purchasers of their bull calves. It sometimes happens that bulls from high producing dams fail to transmit this quality to the offspring, but they are much more likely to do so than bulls from low producing dams. In using young bulls this risk must always be taken. For this reason it is especially important that one look carefully into the records of the dam and the sire's dam before purchasing. When possible, it is desirable to purchase an aged bull which has proved his merit by the

high production of his daughters, provided he is in good health The majority of men object to handling aged bulls because often they are vicious. For this reason very few bulls are kept until their heifers are in milk and their productive capacity determined. Until this time, the sire's real value is unknown. Many a good bull which would have made his owner famous has been slaughtered at an early age.

The selection of the herd bull is of the greatest importance because he is at least half the herd from the breeding standpoint. His influence on the characteristics of every calf born in the herd is as great as that of the dam of the calf; and, if he is a pure-bred animal used on grade cows, his influence will be more than half because his transmitting powers in breed characteristics will be stronger. No bull whose dam and paternal grand-dam were not capable of producing 300 pounds of butterfat in 365 days should be used for breeding purposes. It would be much better if this minimum were set at 350 pounds. The wise dairyman will select from a cow which produced above 400 pounds (See Frontispiece). If the use of bulls from dams and paternal grand-dams producing less than 300 pounds of fat could be prohibited by state law it would be a long stride in advance. Much damage has been done by unscrupulous and ignorant breeders, who have sold, for breeding purposes and at long prices, pure-bred male calves from cows which did not pay for their keep but had a long line of pure-bred ancestry.

The apparently high first cost of a good bull is far outweighed by the greater value of his progeny. Such a bull, used on a common herd, should easily increase the average production by his progeny 1,000 pounds of milk or 40 pounds of fat per cow per year above that of their dams. One Holstein-Friesian bull used in the Ohio Experiment Station herd increased the average production of his 7 daughters 1,299 pounds of milk and 40 pounds of butterfat per year above that of their dams. Forty pounds of fat per year for 6 years (average producing period) by each of 7 cows would be 1,680 pounds of fat. 1,680 pounds at 30c per lb. equals $504. This animal cost $100 when a calf. One Jersey used in the Station herd decreased the average production of his 11 daughters over 700 pounds of milk and over 45 pounds of butterfat per year below that of their dams. Forty-five pounds of fat per year for 6 years by each of 11 cows would be 2,970 pounds, which at 30c per pound would equal $891. The immediate difference in money value of these two bulls on these herds of less than 20 cows each was $1,395.00. Both bulls had an equally good chance to increase the production. The figures given above take no account of the advantageous or detrimental effect on the progeny of these daughters.

Dairymen must plan for the future of their herds as well as for the immediate profits, if their cattle are to improve rapidly. They owe it to their children and to the state to leave better cattle than they themselves inherited.

In improvement by "grading," it is very important that successive sires be of the same breed. By using this method, a few generations will give animals which, so far as appearance and production are concerned, cannot be distinguished from pure-bred animals. Four generations make them fifteen-sixteenths pure. So far as production is concerned, a grade herd carefully selected and bred to good bulls of one breed is preferable to the average pure-bred herd without selection. Indiscriminate crossing, or the use of bulls from different breeds, gives very uncertain results. It is a serious mistake to think that by mating animals of one breed with animals of another breed the desirable characteristics of each may be retained. The chances are just as great that the undesirable characteristics will be retained.

Thus far, stress has been laid on the importance of records of production and little has been said about pedigree. Pedigree may be valuable or harmful according to the quality of the ancestry. The animal with the long pedigree showing productive ancestors has its power of transmitting productive capacity greatly reinforced. More certainly the animal having a long list of non-productive ancestors has its power of transmitting the lack of productive capacity reinforced. A sire with such a pedigree as the latter is decidedly harmful to any herd. The wise purchaser will give little credit to pedigree unless accompanied by production records. To say that an animal is pure-bred is not enough. Some of our breeds have been seriously hindered in their development in the past by adhering to pedigree rather than production, and by failure to discard poor producers, which is really more necessary among pure-bred cattle than among grades (See Fig. 11). Because of the indiscriminate breeding, the unscrupulous sale of inferior bulls for this purpose, and the destruction of the progeny of good cows, the dairy cattle of Ohio have not improved greatly in production during the last 10 years, except in a comparatively small number of herds.

Bulls must be selected from other herds and it is important to know that they are healthy before purchase. It is especially important to avoid contagious abortion and tuberculosis.

Tried bulls or young bulls of breeding age cannot always be secured readily; therefore, it is well to have a young bull growing up to take the place of the one in use.

THE HEIFERS

After the unprofitable cows have been discarded and a good bull secured, the next step is to raise the heifer calves from the best cows and the good sire. These will replace the old cows when they cease to be profitable, or when the heifers become more profitable. In order to keep the herds of the state properly replenished 200,000 heifer calves must be raished each year; and no class of farmers is better trained or equipped to do this, or has better foundation stock on which to build, than the men who are now in the dairy business.

Fig. 1. High grade heifers.

In the past it has been the custom of many large dairymen to replenish their herds by purchasing cows, milking them until fat and selling them to be slaughtered. This system serves to cut off the progeny of the best cows and should be severely condemned. It can hardly do otherwise than decrease the productive capacity of our herds. Good cows are relatively scarce and command high prices. They are cheaper at high prices than poor cows at any price. Those which are profitable for milk production are the very cows whose progeny are the most valuable. Since good cows are so badly needed, it is economically a crime to destroy them, to breed them to "scrub" bulls, to breed poor cows to "scrub" bulls or to breed good cows to good bulls and destroy the female progeny. It is commonly believed that the dairyman who receives a good price for his whole milk cannot afford to raise heifer calves to replenish his herd,

because they would sell for less at weaning time than the milk which they consumed would have brought. At this age the value of a heifer calf for production and breeding purposes cannot be measured by her market value; nor is it wise to assume that she will cost more to keep until calving than the price of a moderately good fresh cow purchased on the market.

The above method assumes that it is better to purchase fresh cows or "springers" from persons less favorably located who can raise them at a less cost. This looks well, but it tends to degrade rather than improve the cattle. If the farmer who attempts to raise the cows secures a high class bull to improve his herd, and sells his best cows to the man more favorably located for marketing milk, he must of necessity constantly raise his heifers from an inferior lot of cows. Under such conditions, cattle will do well to hold their own without improving. No one who wishes to improve his herd should be tempted by a moderate price to part with his best cows. If this system were conducted on a sufficiently large scale to permit the keeping of the best cows for breeding purposes and disposing of the second best at reasonable prices, improvement could be obtained. If the good cows brought into the herds maintained by purchase could be bred to good bulls and the heifer calves returned to the original farms to be raised, it would help to solve the problem; but this is seldom done. If every female calf from every good cow in the state were saved and all proved good milkers, there would still be a shortage of good cows for some time. This shows that if the demands of the future are met, and cattle improve rapidly, all dairymen must provide good bulls and save the heifer calves from cows which are above the average, discarding those which are weak, diseased or deformed.

Replacing cows by purchase is always sure to introduce infectious diseases into the herd sooner or later. For the health of the herd, the fewer animals purchased the better. When more of our herds consist entirely of cows grown on the same farm, there will be much more hope of controling infectious diseases. Dairymen who are far-sighted will not permit the desire for immediate gain to blind their eyes to the real value of good, healthy heifers from good parents and will preserve them.

GOOD COWS

Some cows produce ten times as much as others; and it is also true that one cow may produce three times as much as another per hundred pounds of feed consumed, which means more than three times as much profit. The poor producer which weighs 1,000 pounds requires nearly as many pounds of feed to maintain the body as the high producer which weighs 1,000 pounds; therefore the

cow which eats most has most food left above maintenance to turn into milk. If the poor cow eats 10 pounds of food above the amount required to maintain the body and the good cow eats 25 pounds more, the good cow will return approximately twice as much milk as the poor cow, but it may require all the milk produced by the poor cow to pay for her keep. Experiments indicate that one cow will make practically as good use of the food consumed, above maintenance, as another; and that the main difference is in the capacity to consume, and the tendency to put feed into milk instead of body fat. The following are some contrasts taken from Circular 99 of this Station: In one herd 10 cows lacked $12.23 of paying for their keep. What kind of business man would the farmer make who paid these 10 cows $12.23 for the privilege of milking and feeding them for one year? In this same herd, 2 cows gave a profit of $64.65. Had this entire herd been as good as the best cow (not a phenominal cow) the total profits would have been $415.00 instead of $52.42. A similar herd consisting of 13 cows returned a profit of $607, an average profit of $46 per cow. Can we say that, from the milk producer's standpoint, such a cow is worth as much as 46 cows returning $1.00 profit?

A few dairymen can buy enough cows to fill up their herds; but, if all should attempt to do so, there would be the equivalent of at least three buyers for every good cow. This emphasizes the fact that we must depend on breeding and raising cows for our future herds. When dairymen fully realize their value, high producing cows will advance in price, and more low producers will go to the butcher's block where they should go. One reason why better sires are not used and more heifers are not raised is because the great advantage in good cows is not realized by the average dairyman.

DAIRY TYPE

A knowledge of dairy type or form is of great value in selecting good cows; but, like pedigree, it cannot be entirely relied upon. Records of actual production are of far greater value. Selection and breeding for a definite type may seriously interfere with production. The following are some of the essential points in a cow of good dairy type, and the key word to all of them is productive capacity:

1. If a cow is to digest and use large quantities of food, she must have a well developed digestive system. This is indicated by a large, wide mouth; long, strong jaws, and a large body. The body should be long, wide and deep, giving room for a large amount of food.

2. The digested food is carried to the udder by the circulatory system which should be well developed. This is indicated by large "milk veins," "milk wells," veins showing plainly on the udder and body, and by a healthy, "sappy" condition of the animal.

3. The udder should be well developed, because it consists of the glands which take the materials brought to them and change these materials into milk. The udder should be wide and deep, and should extend well to the front and rear. (See Figure 4.) When empty, the udder should be soft and pliable rather than fleshy. A fleshy udder usually indicates that too much gland space is taken up by fat. It should not be cut up between the quarters. The teats should be of good size and placed well out on the quarters.

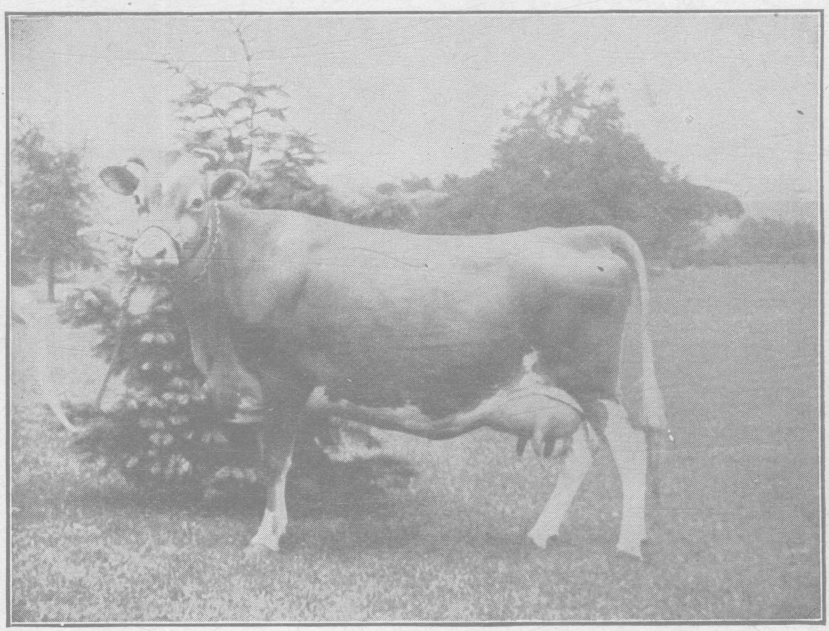

Fig. 2. Excellent body type; teats not well placed.

4. Through the lungs, the blood throws off waste products and takes oxygen to the body. A large blood supply requires large lungs to carry on this work. Large lungs are indicated by large nostrils and a deep, wide chest.

5. A strong nervous system is no less important and is indicated by a large, clear eye, a well developed head, broad between the eyes, and a long, straight back and a long tail. The "back bone" carries the bundle of nerves which pass from the brain to all parts

of the body. A cow should have a large amount of nerve force but should not be too "nervous," which frequently indicates the lack of nerve force.

6. Capacity to produce is also indicated by well developed maternal functions. This is indicated by a large udder; long, strong loin; long, broad pelvis and well developed reproductive organs. Such a cow will give birth to large, strong calves with little difficulty and has plenty of room for a good sized udder.

7. The general appearance of the cow should be taken into consideration. If her tendency is to produce milk rather than to add fat to her body, we say she has "dairy temperament." This is indicated by spareness of form and good condition. Spareness of form in this case does not mean a long, slender body, but it means that the animal does not carry much fat (See Fig. 2). At the same time she should show by a sleek coat and "sappy" condition that she is in good health.

There are many minor points which have not been mentioned but which relate to the above. The best way to fix in mind a good type is to study carefully a cow of good type and fix in mind her form. In breeding, production must not be sacrificed to preserve type; yet one should not select a good producer which evidently has a weak constitution or is radically off type.

DAIRY BREEDS

There are still a great many people who cannot distinguish between the different dairy breeds and who are not familiar with their chief characteristics; hence, a little space is given to this subject. There are four well recognized dairy breeds well represented in Ohio, though the representatives of some are much more numerous than of others. There are some other breeds which claim dairy capacity, but which have not become common. The question most commonly asked is, "What breed of dairy cows is the best?" This question is as nearly answered as may be in the following brief description of the breeds. The most important dairy breeds are the Jersey, the Guernsey, the Holstein-Friesian and the Ayrshire.

JERSEYS

The Jersey is probably the most widely known dairy breed because individuals of this breed are used as "family cows," and it is almost too well known to need description. These cattle are the smallest of the four breeds, and range in color from a light fawn to a dark squirrel gray and even black. Frequently there are a few white markings. They produce the smallest quantity of the

richest milk which often contains above 6 percent butterfat and has a rich, yellow color. It is claimed by the breeders that butter of the finest quality can be made from Jersey milk. The cows are economical producers of butterfat; for this reason they are well adapted to sections where butter and cream are the products sold or where milk is sold strictly on the butterfat basis. They may not endure well as severe a climate as the Holstein-Friesian or Aryshire, but they are well adapted to all parts of Ohio. They are not more subject to tuberculosis than other breeds, as is sometimes claimed. The breed can be improved by selecting for large, strong, deep milking animals.

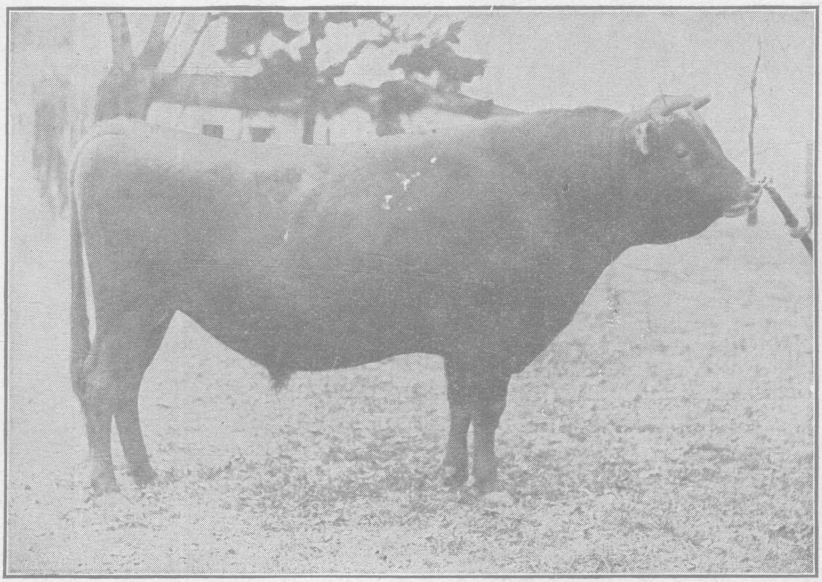

Fig. 3. Pure-bred Jersey.

GUERNSEY

The Guernsey cattle resemble the Jerseys in many respects. They are a little larger and rougher in form and range in color from lemon fawn to orange fawn or nearly red. Generally they possess some white markings, especially on the under side of the body, which is frequently all white. The quantity of milk produced is a little larger than from the Jersey and the percent of fat a little lower. The color of the milk is a deeper yellow than that from any of the other breeds. They rival the Jerseys in the economical production of butterfat and are adapted to the same sections and purposes.

Though not so numerous in the state, they are increasing in numbers and in favor. Where milk is sold by the quart or hundred pounds, regardless of composition, the Jersey and Guernsey cannot compete with the Holstein, but in economy of fat production they probably have the advantage. It costs more to produce 100 pounds of milk containing 5 percent butterfat than to produce 100 pounds containing 3.3 percent butterfat; and 100 pounds of the former is worth much more than 100 pounde of the latter. On the other hand, it costs more to produce a pound of butterfat in 3 percent milk than in 5 percent milk.

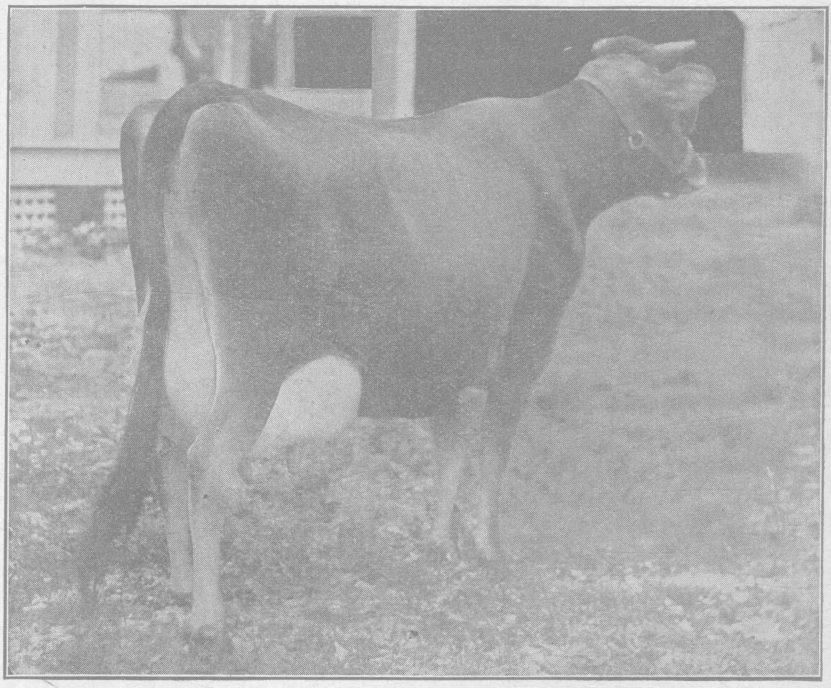

Fig. 4. Pure-bred Jersey.

HOLSTEIN-FRIESIAN

The Holsteins are the largest cattle of the four breeds and are always black and white in color. Any variation from these colors is considered an indication of impurity of blood. They produce the largest quantity of milk of the poorest quality. It probably averages 3.3 percent butterfat and is low in other milk solids. Because of this fact, the Holsteins are the most economical producers of milk per hundred pounds. In point of economy of milk solids they do not differ greatly from other breeds. They are strong,

hardy cattle and usually produce large, strong calves. It is claimed that they will consume relatively more coarse roughage than cattle of the other breeds, which is an open question. The excellence of this breed is largely due to the fact that, in their breeding, less attention has been paid to form and more to production. They are well adapted to all parts of the state, but better to level sections.

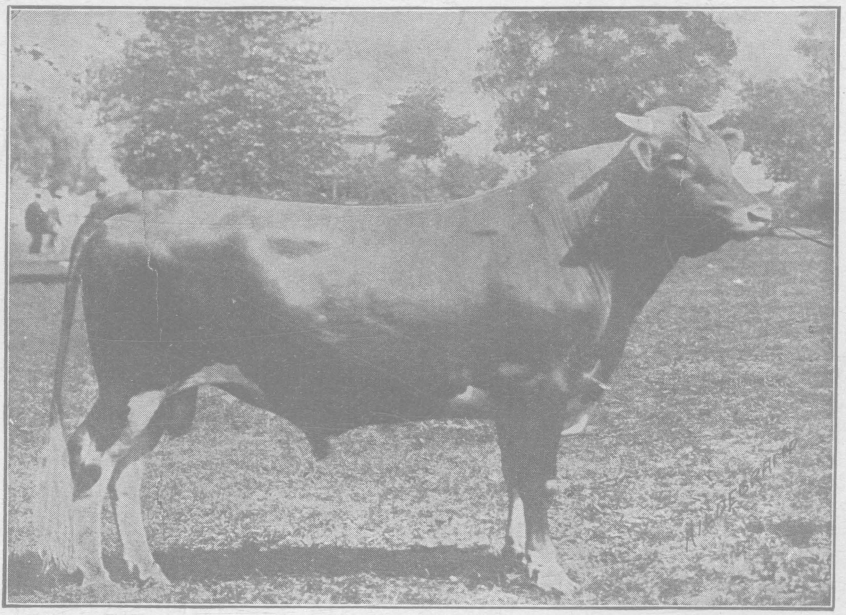

Fig. 5. Pure-bred Guernsey.

AYRSHIRES

The Ayrshires are medium in size, rather slow in development, smooth in appearance, white and red or reddish brown in color, and very hardy. They are uniform in type and are uniformly good producers of milk of average quality. The fat globules in their milk are usually smaller and lighter in color than those in the milk of the other breeds. Because of the small fat globules, the milk does not cream so readily as that from the Jerseys and Guernseys. This makes it suitable for city trade, because it does not churn or separate easily; the only objection being that the city people demand a distinct "cream line" in the bottle. This is their method of judging of its quality. The Ayrshires are claimed to be very economical producers. The number of herds in the state is small, but like the Guernseys, they are growing in favor rapidly. As stated above, they are very hardy and are well adapted to all parts of the state.

OTHER BREEDS

The following are also classed as dairy cattle, but there are comparatively few herds in the United States. The **Brown Swiss** are large, coarse cattle with a mouse color. They are fair milkers and the milk is of average quality. The **Kerry** cattle are small and black with long horns and hair. They are quite good milkers, considering their size. The **Dutch-Belted** are medium sized, black cattle with a white belt about the body. They are not especially good milkers and the milk is medium in quality.

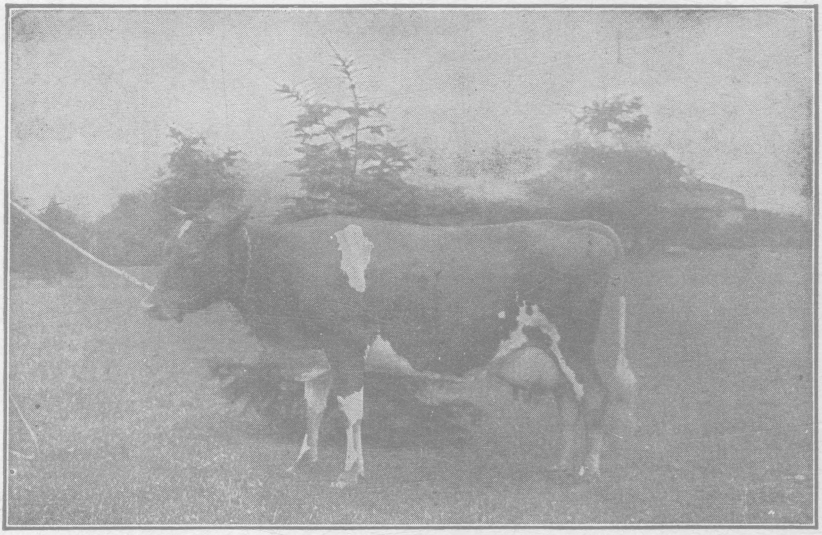

Fig. 6. Pure-bred Guernsey. (See also Fig. 2.)

After considering the characteristics of the different breeds, the dairyman should make his own choice. No one of the four breeds excels in all desirable points. Much depends on the locality, the disposition of the product, and the fancy of the breeder. The capacity of the individual cow to produce is of greater importance than the breed. That is to say, the breed one should select is of less importance than the securing of high producing cows of the breed selected. Good Jerseys are much better than common Holstein-Friesians, and good Holstein-Friesians are much better than common Jerseys. Usually, it is best to select the breed most common in the section. Each dairyman, who intends to remain a dairyman, should select one of the breeds, place a bull at the head of his herd, and as soon as he can afford it, place a few good females of that breed in his herd as the foundation of a future, pure-bred herd. If properly

cared for, three or four animals will soon increase into a large herd. Perhaps the greatest herd of Holsteins in the state of Ohio and the herd holding world's records is the progeny of one cow. The advantages of pure-bred animals over grades are as follows: Surplus stock can be sold at a much better price and the heifers coming into milk are more uniformly good producers if equal care is taken in the breeding.

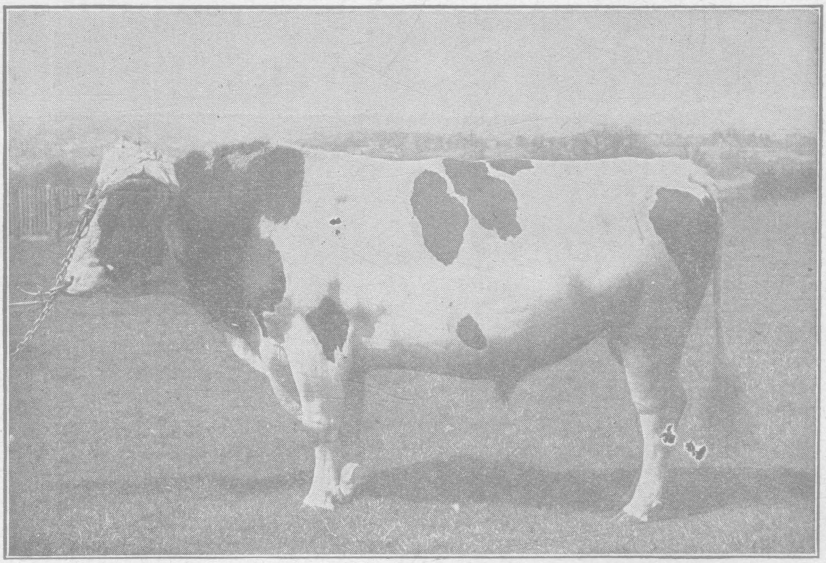

Fig. 7. Pure-bred Holstein-Friesian.

DUAL PURPOSE

There is some agitation for a "dual purpose cow;" that is, a cow which has the characteristics desired in a beef animal and also the characteristics desired in a dairy cow. It is a scientific fact that, in breeding plants or animals, it is a much more difficult matter to select for and fix two characters than one character, when these characters are not positively correlated. In the past it has been the common belief that milk production and beef production were antagonistic; and, though this has not been proven, it is proven that they are not positively correlated. The writer believes that with time and patience, a milking strain can be developed from a beef breed, or that a beef strain can be developed from a dairy breed; but that it will be twice as difficult to get above the average of both characters in each of a number of animals. Some breeders may be

lucky enough to get the combination in a few animals, but these must be mated with others which do not possess excellence in both characters. Of the breeders attempting this problem, the majority will fail and but few will get above the average in both qualities. The famous milking Shorthorns of England, which are so frequently referred to, have taken on much of the type of Holstein-Friesian cows, and also their low quality of milk, much of it testing 3 percent or less butterfat.

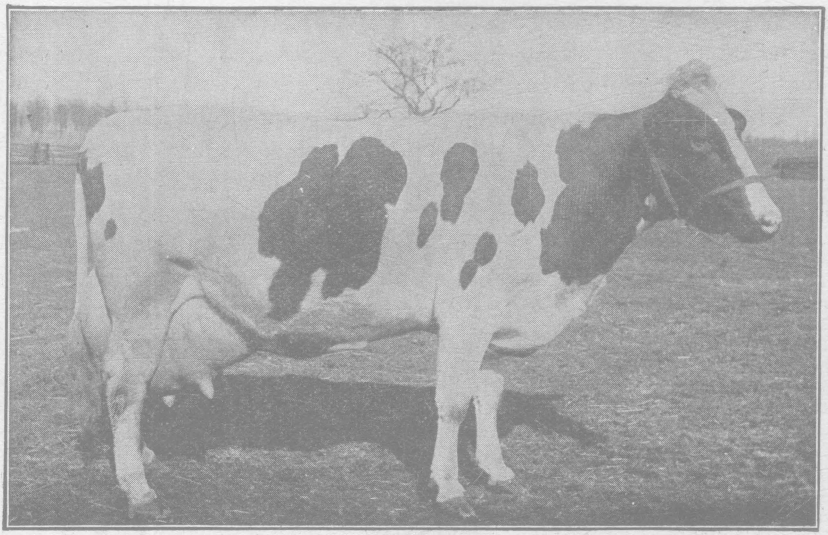

Fig. 8. Pure-bred Holstein-Friesian.

GENERAL

Rapid improvement of dairy herds in general will not come until the average dairyman realizes the difference in value between high and low producing cows, and is willing to take the steps necessary to determiue what each cow is doing toward returning a profit on her own account. Such a record is necessary in order to breed most intelligently. If poor cows are mated with "scrub" bulls, the progeny are quite certain to be scrubs. If poor cows are mated with good bulls, or good cows are mated with poor bulls, the progeny will probably be average cows, which in Ohio mean unprofitable cows. If productive cows are mated with bulls from productive ancestry there is greater certainty of getting good cows, which are the profitable kind. The last is the only way by which breeding can rapidly raise the average production of Ohio herds and make it possible for all dairymen to have good cows.

It requires years of careful, painstaking effort to breed up a herd of 30 to 40 high producing cows, but it is well worth the effort. To build up such a herd requires little more manual labor than to care for a "scrub" herd, but it does require more brain work. The man who has money can in a short time bring together a herd of high producers selected from other herds; but the first cost is too great for the average farmer, and he will have more difficulty in maintaining the excellence of his herd than the man who has taken a much longer time, and has improved his herd by breeding. If selected from various herds, their good qualities may be somewhat accidental and may not be transmitted to their progeny. They will usually lack the uniformity of type which is desirable. There is also a training and a knowledge of the individual which comes with the improvement of a herd by breeding that is almost necessary to the maintenance of such a herd. The tendency of highly developed animals is backward; hence, the greater the production, the greater the care and vigilance necessary to maintain that production in their progeny. It is also true that among the best bred animals there will be failures, just as there are occasionally good cows among "scrubs;" but one must not be discouraged by these poor producers, which must be discarded. The men who succeed as breeders are the men who "live with" and study their cattle and their needs.

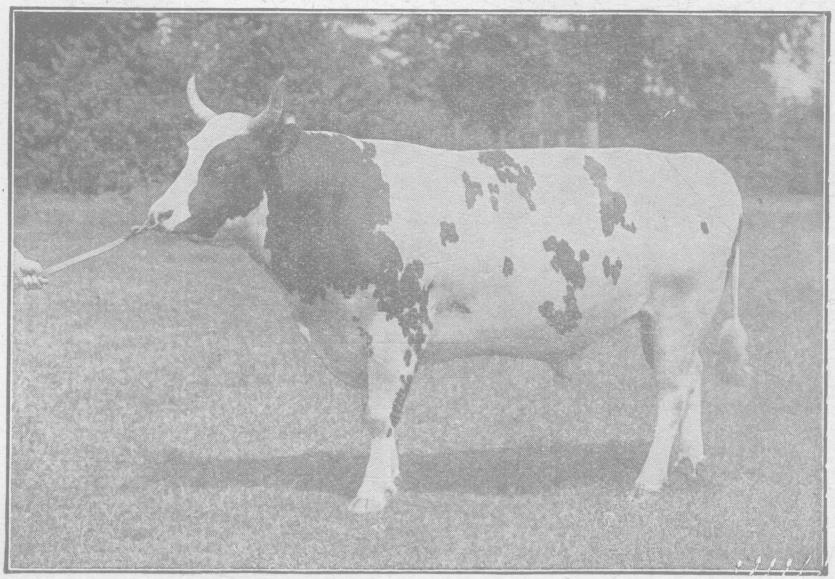

Fig. 9. Pure-bred Ayrshire.

One desiring to build up a good herd should procure some of the books now available on the subject of breeding. But few of the different phases of the work can be touched here and the few mentioned will be discussed *very* briefly: (a) "Inbreeding" is the mating of animals which are full cousins or more closely related. It may be practiced with comparative safety for one or two, and possibly more generations where the animals are strong and vigorous and possess in a large degree the characteristics desired. Inbreeding is the shortest method of getting really good animals; this is especially true where a good sire is obtained. Largely because of the prejudice against inbreeding and because of the bad effect which *may* result, it is a question whether one should practice it with pure-bred animals. (b) "Line breeding" is the mating of animals less closely related than first cousins but in the same family, especially on the sire's side. The same may be said of line breeding that has been said of inbreeding; but it may be carried further with less danger, and the results desired are not as marked nor as quickly obtained. It is a slower but safer method of obtaining the same results. (c) The common theories about controlling sex amount to nothing. There has been much investigation along this line and all of it seems to prove that the control of sex is beyond the power of man. (d) The influence of the sire and dam on the offspring is probably equal; unless, as is frequently the case, the sire is better bred in which case he has a greater influence. This is especailly true with a pure-bred sire used on a herd of grade cows.

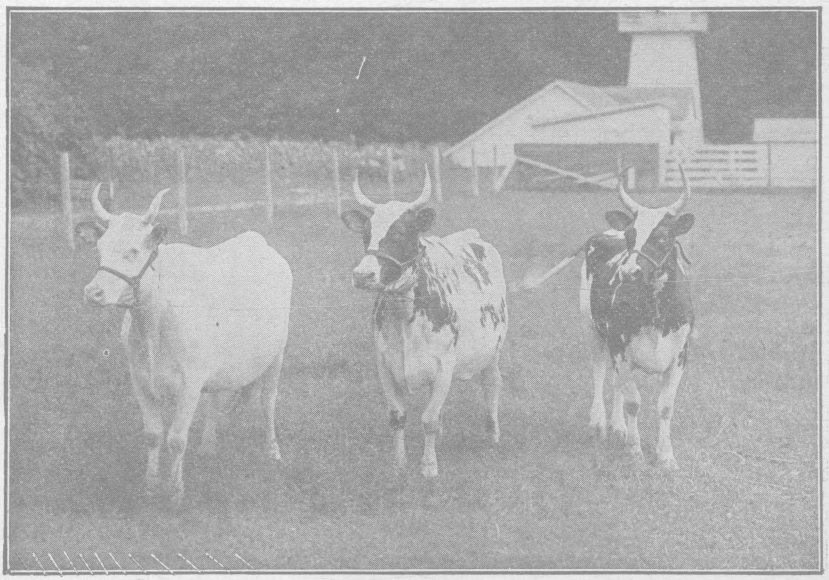

Fig. 10. Pure-bred Ayrshires.

COMMUNITY BREEDING

Among American farmers there has existed a lack of loyalty to home enterprises and a prejudice against working together for vital common interests. No large community can really prosper unless there is team work, because the individual members become a prey to outside interests. Such is true where milk prices are set by large firms or corporations instead of by producers or by supply and demand. Farmers should follow the example set by the commercial organizations of the cities. This tendency on the part of farmers to work against, instead of with each other, has been influential in the breaking up of country society, and the leaving of the farm by the man who could outstrip his neighbors in getting the fertility of his own land into his pocket and as much of that of his neighbors as possible. A spirit of trust in one's neighbors, instead of a spirit of distrust or jealously, should be cultivated. Every man should be ready to fight for his neighbor instead of working against him. Two neighbors producing the same kinds of crops or cattle should be aids to each other and not competitors. Had the dairymen of this state cooperated in systematic breeding since dairy cattle were introduced, the state would now be known as the best place in the United States to go for good dairy cattle. Instead of this, comparatively few buyers come from other states; we have not enough good cows for our own needs and the average production of milk and fat is disgracefully low. Anything like extensive improvement must come by concerted or contemporary action. The sooner this is started, the better for all concerned.

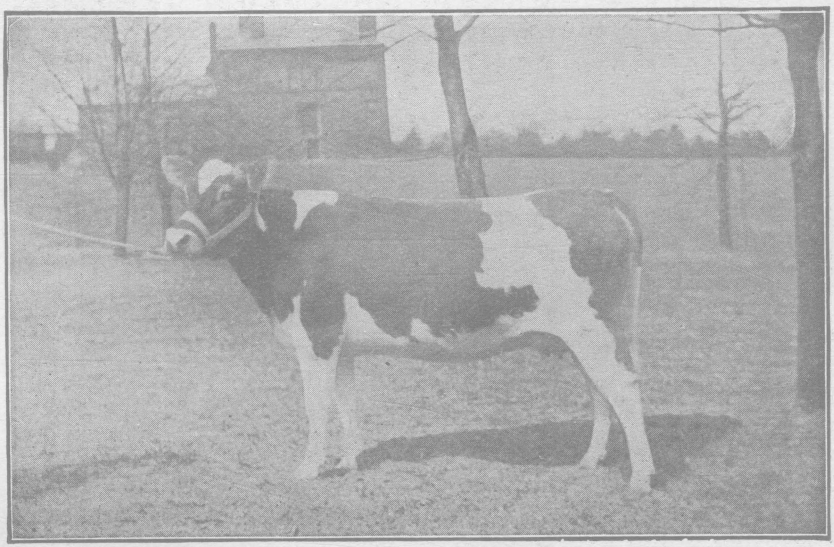

Fig. 11. A scrub pure-bred.

In communities where the herds are small and the individual dairyman does not feel that he can afford to purchase a pure-bred bull for his own use, it is a good plan for two or more men to own one in partnership. An entire community may own one or more bulls and cooperate in their use. In such cases it will be necessary for the community, or at least the persons cooperating, to select and advance the interests of one breed; that is, bulls of one breed should be used, whether on grade or pure-bred cows. This plan would make it possible to shift the bulls from one herd to another without the bad effects of breeding the offspring of a bull of one breed to a bull of another breed; and the necessity of disposing of a valuable bull rather than use him on his own progeny.

Where more than one bull is used, an association should be formed and the business conducted by honest, competent officers. This association could cover a large territory and handle a large number of bulls. In this way the grade cattle of a section can be improved rapidly without great cost to any one individual. The association may be confined to pure-breds or to grades or it may include both. Such organizations are being operated in other states and are meeting the expectations of their members. Unless some such steps are taken to improve Ohio cattle, in a few years our dairy products will not be able to compete successfully in the markets outside of the state nor in the markets of our own large cities which are located on the borders of the state.

The following are some of the advantages of breeding associations:

1. Systematic and rapid improvement of cattle can be brought about.

2. A section where there are many careful breeders will attract more and better buyers of both surplus cattle and products. If a man cannot fill an order, it is to his advantage to have a neighbor who can fill it.

3. Local educational meetings can be held and by cooperating with farmers' institutes, better speakers can be obtained.

4. Good dairy literature can be easily and systematically distributed among the members and their neighbors.

5. The same association can cooperate in the testing and the sale of cattle and products, and better prices can be obtained for the same.

6. Cooperative advertising can be made useful and a breeders' directory can be published.

7. Community sales of surplus stock can be held annually, if desired.

8. Better bulls can be secured and retained. One excellent bull wisely used may make a wide reputation for a community.

9. An efficient scheme of testing the transmitting power of bulls can be devised and carried out. With the most careful selection, some bulls fail to transmit good milking qualities; and where an untried bull is used exclusively on a herd, he may undo the good accomplished by previous breeding and selection. (See page 81). This loss could be shared by the community or be largely avoided.

10. They can be a strong factor in securing better laws regulating the control of animal diseases, etc.

11. Local shows or fairs can be held, or better exhibits at county fairs provided.

12. By no means the least advantage would be the social advantage gained by common interests, and the learning to work together as a unit.

There are some disadvantages which must not be overlooked in such a plan, and of these the following are important:

1. The difficulty of working together in harmony. Personal differences must be thrown aside as is done when in battle against a common enemy.

2. The difficulty of securing competent leaders as officers.

3. The danger of spreading contagious diseases among cattle. On the other hand, such an organization can become a strong factor in eradicating such diseases from the community. For this reason strict regulations should govern service, and the changing of a bull from one herd to another. When such associations are organized, they should be governed by a well planned constitution and by-laws —See page 99.

ASSOCIATIONS IN THE STATE

At the present time there is a state Holstein-Friesian Association and also two local associations (The Western Reserve Holstein-Friesian Association and one at Union), a State Guernsey Breeders' Association and a State Jersey Cattle Club. The Ayrshire breeders have no state association. There is one general improvement association which includes the work of improving dairy cattle. In looking up the matter, I find that the majority of the owners of pure-bred cattle are not members of their breed associations. There should be more local associations among breeders of pure-bred cattle and numerous associations for the purpose of improving our grade cattle.

CONSTITUTION AND BY-LAWS GOVERNING COOPERATIVE BREEDERS' ASSOCIATION

Art. 1. It should be the purpose of this association to procure and use pedigreed sires of merit for the purpose of improving our livestock through a system of upgrading. This method of improvement implies the continued use of some one kind of pure blood on the grade and mixed bred stock. The association opposes the admixture of the blood of several breeds and the use of cross-bred, grade and scrub sires. The association also pledges itself to exert every possible influence for the improvement and furtherance of the livestock interests of the community.

Art. 2. The name of this association shall be ———.

Art. 3. The annual meetings of this association shall be held on the ———.

Art. 4. The officers of this association shall consist of a board of five directors, from which shall be elected a president, vice-president, and a secretary-treasurer, whose term of office shall be one year, except the directors, whose term of office shall be three years. At the first meeting of this association there shall be elected one director to serve one year, two directors to serve two years, and two directors to serve three years.

Art. 5. The president shall preside at all meetings of the association and of the board of directors. He shall countersign all orders for money authorized by the association or board of directors. He shall sign all stock certificates and have general supervision of the affairs of the association.

Art. 6. In the absence of the president, the vice-president shall have the same power and duties as the president.

Art. 7. The secretary shall keep a correct record of the proceedings of the association, also of the board of directors. He shall keep a debit and credit account of the financial transactions of this association. He shall furnish the caretakers of the sires of this association with books in which to record the service of each sire, together with the date of service and the owner of the animal served.

He shall settle with the caretakers at least once in ——— months, giving them a receipt for all money received from them. At the annual meeting of the association each year he shall give an itemized report of the business of the association for the past year and at the expiration of his term of office shall turn over to his successor in office all books, papers, and all property in his possession belonging to the association. He shall draw and sign all orders for money on the treasurer authorized by the association or board of directors; also make out and sign all certificates of stock of the association.

As treasurer he shall give a good and sufficient bond with at least two sureties for twice the amount of money that may come into his hands in any one year. He shall pay all orders for money drawn and signed by the secretary and countersigned by the president. When in funds, he shall keep a debit and credit account of all moneys received and paid out by him for the association. He shall at the annual meeting of this association give a report of amounts of money received and paid out by him, and settle with the board of directors by producing vouchers for all money paid out.

Art. 8. The regular meetings of the board of directors shall be on the———.

Art. 9. The board of directors shall have charge of all the business of the association, except in opposition of a majority vote of the stockholders of the association at regular or special meetings of the association.

Art. 10. Three directors shall constitute a quorum to do business, but a less number may adjourn to another date.

Art. 11. Special meetings of the association may be held on a call from the secretary by notifying each stockholder at least 24 hours in advance of the meeting; also on petition of five stockholders to the secretary.

Art. 12. These articles of agreement may be amended at any meeting of the association by a majority vote of those present and voting.

THE BY-LAWS

(1) It shall be the duty of the officers of this association to purchase the necessary sires and negotiate with competent parties within the association, centrally located, to care for and handle the bulls at a sum not to exceed $—— per annum.

(2) All bulls must be purchased subject to the tuberculin test as a safeguard against the introduction of tuberculosis.

(3) No bull or bulls or other breeding animals shall be purchased from any herd in which three or more cases of abortion have occurred during the past three years. (This will make reasonable allowance for accidental abortion and act as a safeguard against the ravages of contagious abortion.)

(4) Should any contagious or infectious disease appear in the herd of any member of this association he must forfeit the right to patronize males of the association until such time as his herd is declared free from disease by a competent veterinarian.

(5) A service fee of $1 shall be charged members of the association, to be collected at time of service. A charge of $2 will be made to non-members in case the association should decide to accept the patronage of the same.

(6) Service fees shall be used to defray cost of maintenance and handling of sires. Any surplus accumulations from this source may be divided among stockholders as dividends.

(7) It shall be the duty of the officers of this association to require and see to it that each sire is kept in a strong, vigorous, healthy condition, in moderate flesh, with plentiful supplies of suitable feed and sufficient yardage to afford ample exercise in the open air and sunshine in addition to the protection of the stable.

(8) Bulls shall not be used for service under one year of age, nor shall heifers be bred to calve under 24 months of age. During the rush of the breeding season single services only will be allowed.

The above is a form used by some associations. It may be modified to suit conditions.